

STATE OF KANSAS



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DEPARTMENT OF HEALTH AND ENVIRONMENT

Forbes Field
Topeka, Kansas 66620-0001
Phone (913) 296-1500

Mike Hayden, Governor

Stanley C. Grant, Ph.D., Secretary
Gary K. Hulett, Ph.D., Under Secretary

May 9, 1988

Wes Bartley
U.S. Environmental Protection Agency
Region VII
726 Minnesota Avenue
Kansas City, Kansas 67101

Re: Partial Closure of Hydrocarbon Recyclers, Incorporated
Wichita, Kansas
KSD007246846

Dear Mr. Bartley:

Enclosed is one (1) copy of the proposed hazardous waste storage facility closure plan for two storage tanks and a transfer trailer at Hydrocarbon Recyclers, Incorporated, Wichita, Kansas.

Please place this document on public notice from May 20, 1988 to June 20, 1988. Anyone wishing to comment on the closure plan should contact Mr. John Paul Goetz, Bureau of Waste Management, Kansas Department of Health and Environment, Building 730, Forbes Field, Topeka, Kansas 66620.

If you have any questions or comments concerning the closure plan, please contact either myself or Mr. Goetz.

Sincerely,

Martin L. West
Environmental Engineer
Hazardous Waste Section
Bureau of Waste Management

sc/bartley.mlw
Enclosure



R00001765
RCRA Records Center

HAZARDOUS WASTE FACILITY CLOSURE PLAN
PUBLIC NOTICE

THE KANSAS DEPARTMENT OF HEALTH AND ENVIRONMENT (KDHE) HAS RECEIVED A RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) CLOSURE PLAN FROM HYDROCARBON RECYCLERS, INCORPORATED (HRI), WICHITA, KANSAS FOR A PORTION OF ITS HAZARDOUS WASTE STORAGE FACILITY. THE FACILITY IS LOCATED AT 2525 NORTH NEW YORK IN WICHITA, KANSAS. IT HAS BEEN OPERATING UNDER EPA IDENTIFICATION NUMBER KSD007246846.

HRI is renovating and expanding its current hazardous waste storage, blending, and transfer facility. As part of the renovation, two hazardous waste storage tanks and a transfer trailer are being decommissioned. The closure will result in the removal of all hazardous waste from the tanks and trailer. After the tanks and trailer are certified clean, they will be scrapped. All wastes generated by the closure will be properly disposed of by HRI. This closure plan was submitted to KDHE as required by Kansas Administrative Regulation (K.A.R.) 28-31-8, adopting by reference 40 Code of Federal Regulations (CFR) Part 265 Subpart G and Subpart J.

The closure plan is available for review from May 20, 1988 to June 20, 1988 during normal business hours, 8:00 a.m. to 4:30 p.m. Monday through Friday, at the KDHE Topeka Office, Building 730, Forbes Field, Topeka, Kansas 66620; the KDHE Wichita District Office, 3244 East Douglas, Wichita, Kansas 67208; and the U.S. Environmental Protection Agency Offices, 726 Minnesota Avenue, Kansas City, Kansas 66101.

Comments should be submitted in writing to Mr. John Paul Goetz, Bureau of Waste Management, at the KDHE Topeka office. Requests for additional information may

also be made by telephone at (913) 296-1607. Comments must be submitted by June 20, 1988.

If comments are received which indicate public interest in these closure proceedings, a public hearing will be scheduled at a later date. Requests for a public hearing also must be submitted by June 20, 1988. The public notice and public hearing procedures may be found in K.A.R. 28-31-8, incorporating by reference 40 CFR 265.112.

Partial Closure Plan

Hydrocarbon Recyclers, Incorporated
EPA I.D. Number KSD007246846

April 1988

HYDROCARBON RECYCLERS, INC. RCRA
CLOSURE PLAN FOR TWO, 4500 GALLON HAZARDOUS WASTE
STORAGE TANKS, ASSOCIATED DIKE AREA, AND ONE 3000 GALLON TANK TRAILER

This is only a **partial** closure in preparation for the installation of new tanks at this facility, but will result in the complete removal of all hazardous waste associated with these tanks and their related structures. Post-closure requirements, including 40 CFR 265.116-265.120, do not apply.

[Ref. 265.111]

These tanks will not be used after approximately June 1, 1988. In accordance with 40 CFR 265.111 the tanks will be closed in a manner that will minimize the need for further maintenance, and will control, minimize, or eliminate, to the extent necessary to protect human health and the environment, contaminated run-off to the ground or surface waters or to the atmosphere, and will comply with the closure requirements of Subpart G including, but will not be limited to the requirements of 265.197 which deal with tank storage closure requirements. To comply with the applicable requirements of 265.197 all waste residues, contaminated containment system components, contaminated soils, and equipment contaminated with waste, will be removed or decontaminated, and managed as hazardous waste. The closure plan and closure activities (a cost estimate and financial responsibility (Subpart H) for this closure is not necessary since this is only a partial closure with HRI continuing in business) for the tanks will meet all of the requirements specified in Subpart G of this Part. Post-closure and the requirements for tanks not having secondary containment are not applicable to this partial closure plan.

[Ref. 265.112(a)]

This closure plan is located with all other EPA required documents, in the HRI office in Wichita, Kansas. This document is found in the office file of the Hazardous Waste Coordinator with other interim status documents entitled, "Part B". It is available for inspection and a copy will be provided if requested by the EPA or KDHE.

The Hazardous Waste Coordinator is responsible for all updates and distribution of revised copies. Copies of this plan are on file with KDHE's Forbes Field Office in Topeka, Kansas.

[Ref. 265.112(b)(1) See Ref. 265.112(b)(4,5) for details]

[Ref. 265.112(b)(2) See Ref. 265.112(b)(4,5) for details]

The final closure of these tanks will consist of four phases to prevent any threat to human health and the environment.

- 1) Review and approval of the closure plan by the KDHE; implementation certified by a registered independent professional engineer.
- 2) Disposal of hazardous waste.
- 3) Decontamination and disposal of tanks and disposal of the concrete pad.
- 4) Certification submitted to the KDHE of closure by USPCI, Inc. Engineering and a registered independent engineer.

[Ref. 265.112(b)(3)]

The hazardous waste stored in the tanks is ignitable waste solvents (EPA Waste Numbers D001, F003, and F005). Since this will be a partial closure involving an operation that will continue, the actual contents of the two, 4500 gallon tanks and the transport tank will be disposed of as cement kiln fuel leaving only the tanks, the residue, the ancillary equipment, and the secondary containment system to be handled.

[Ref. 265.112(b)(4,5) and 265.114]

Closure will be performed by HRI-Wichita employees as follows in the exclusion and decontamination areas and utilizing the boiler for steam (See Facility Map for the three yellow areas marked):

- 1) Liquids of each tank will be emptied by diaphragm pumping the liquid contents into a USPCI tanker truck, transported, and burned as cement kiln fuel at General Portland Cement in Fredonia, Ks. or transferred by diaphragm pumping the liquids to a new kiln fuel storage tank to await a regular load going to General Portland.
- 2) Each tank will be steamed out for a minimum of 24 hours or until all solvent vapors are below 20% LEL for toluene by means of a Gastech 1314 vapor monitor.
- 3) All of the water that has condensed during the above step will be diaphragm pumped out of the tanks into 17E steel drums positioned within the diked area (Exclusion Area) shown below and stored in the drum storage area to await disposal or into another bulk tank to await disposal.

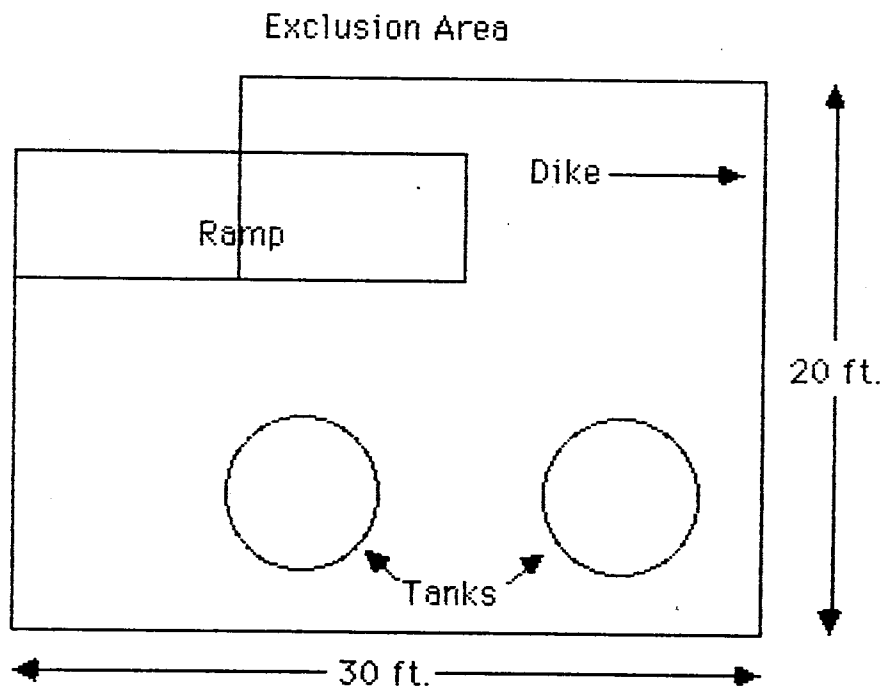
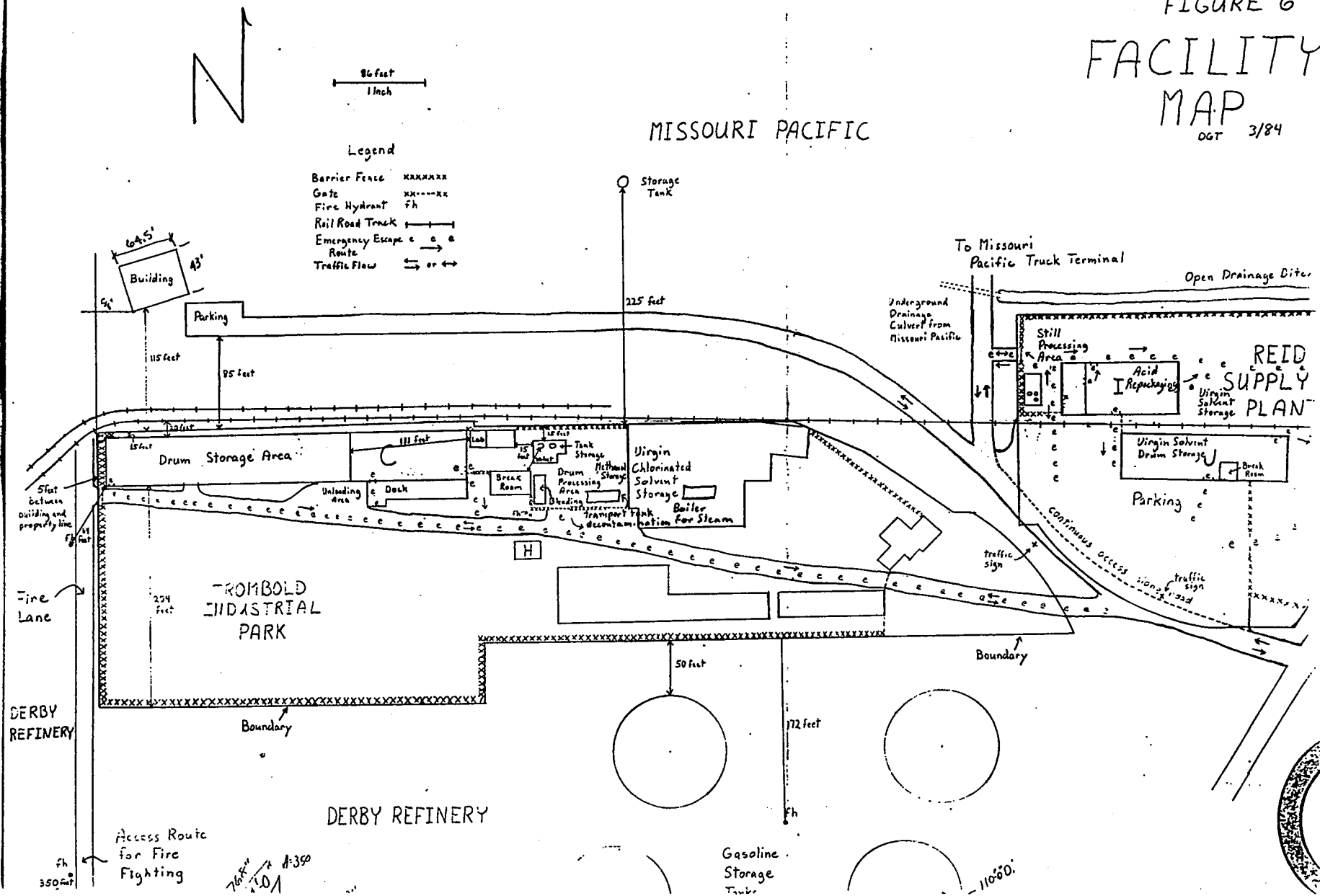


FIGURE 6
FACILITY
MAP
OGT 3/84



4) All solids and sludge will be removed from the tanks by entering the tanks and physically shoveling the contents into 17H steel drums and storing them in our drum storage area to await processing for kiln fuel or incineration.

5) After solid and sludge removal the inside of each tank will be steamed and washed out with a high pressure washer until the tanks are considered clean by an independent professional engineer and the KDHE. The tank then can be scrapped by a metal salvage company.

6) All piping will be steamed out as the tanks in step 2 above and stored in the drum storage area for reuse on hazardous waste storage tanks involving the same type of waste solvents.

7) The entire concrete pad and dike area for the two 4500 gallon storage tanks will be broken up and loaded into a gondola to be disposed of by hazardous waste landfill.

8) All water collected from the tank cleaning process will be either diaphragm pumped from the tanks into 55 gallon steel collection drums and stored in the drum storage area or pumped from collection drums and stored in bulk to await shipment to HRI-Tulsa for disposal. Quick-disconnect hoses that are compatible with the water and other residue will be used to convey the contents from the tanks to collection drums or storage tanks. This whole process will take place either in the secondary containment area for the two, 4500 gallon tanks or in the process area for the transport tank.

9) The soil beneath the concrete tank storage pad will be core-sampled four times to a depth of 18 inches and the resulting composite sample analyzed for the most common solvents stored in these tanks to demonstrate the lack of contamination (See Sampling Procedures and Analysis Criteria for more detail).

10) Employees involved in this closure will be required to follow the procedural and safety equipment requirements set forth in the "Confined Space Entry" enclosure.

11) The tanks will be certified as clean by a registered professional engineer before metal scrapping.

All waste generated during closure will be disposed of according to the following channels:

1) waste solvent from the tanks will go to General Portland Cement for kiln fuel in Fredonia, Ks.

2) waste solids (including concrete) will be hazardous waste landfilled at USPCI-Lone Mountain in Waynoka, Ok., if the solids are not subject to the landban (determined by analysis), or incinerated at Rollins Environmental Services in Deer Park, Tx. or at another EPA approved incinerator.

3) waste cleaning water will go to HRI for deepwell disposal.

4) any contaminated soil that is indicated by the solvent and heavy metals testing will be hazardous waste landfilled at USPCI-Lone Mountain.

[Ref. 265.112(b)(6)]

The total time required to close the tanks along with the concrete pad and dike will be 180 days (see enclosed "Closure Schedule"). Accumulated waste will be held in our drum storage area until normal loads are taken to the respective disposal facilities.

[Ref. 265.112(b)(7)] This does not apply because, as stated earlier, this a partial closure of a part of the facility that will be replaced. HRI will still be in business.

[Ref. 265.115]

CERTIFICATION

Certification will be submitted to the KDHE by mail. The certification will be submitted with the appropriate signatures when the closure activities specified by the plan have been completed (see enclosed "Closure Certification Form")

[Ref. 265.112(b)(6)]

The total time required to close the tanks along with the concrete pad and dike will be 180 days (see enclosed "Closure Schedule"). Accumulated waste will be held in our drum storage area until normal loads are taken to the respective disposal facilities.

[Ref. 265.112(b)(7)] This does not apply because, as stated earlier, this a partial closure of a part of the facility that will be replaced. HRI will still be in business.

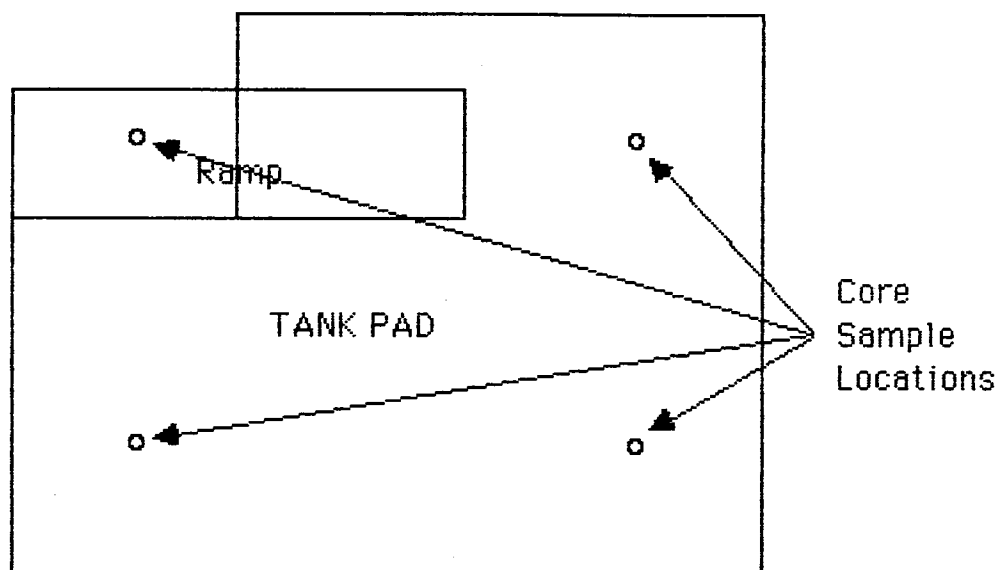
[Ref. 265.115]

CERTIFICATION

Certification will be submitted to the KDHE by mail. The certification will be submitted with the appropriate signatures when the closure activities specified by the plan have been completed (see enclosed "Closure Certification Form")

SAMPLING PROCEDURES AND ANALYSIS CRITERIA

1) 4, 18 inch (one inch diameter) core samples will be taken from the locations indicated in the diagram below.



2) 18 inch core samples will be made by use of a steel, 18 inch core sampler tool. Each sample will be packed in the same air-tight container in equal portions so that there will not be any air space left in the container. Between each sampling the sampler will be decontaminated and kept clean to minimize any skewing effect by sample or contaminant carryover. The composite sample will be immediately placed in a freezer over night and shipped the next day in a foam container by Federal Express so that the sample will arrive at the lab by 10:00 a.m. the next day.

3) Mixing of the four core samples will be performed by the lab performing the analysis so that a representative, composite sample will be obtained.

4) If there is a visible stain under the concrete, this will also be sampled, packaged, and shipped according to the procedure in step 3.

5) QA/QC will be accomplished according to the following QA/QC standards:

The data in the report received will be validated using a well documented quality assurance program. Each test will be conducted under a standardized method format with a set of quality control checks and criteria. These checks and criteria include the following:

- a) a three point calibration standard using authentic reference materials,
- b) a method blank to validate background,
- c) a method control spike to validate accuracy,
- d) one in ten samples are run in duplicate to validate precision of the method,
- e) detection limits for all methods have been determined statistically and reflect a value at which the method can no longer generate accurate, quantifiable data.

6) The parameters tested for the composite sample will be:

<u>Parameter</u>	<u>Det. Limit</u>
Acetone	1.0 ug/g
Methanol	1.0 ug/g
Methyl Ethyl Ketone	1.0 ug/g
Methyl Isobutyl Ketone	1.0 ug/g
Toluene	1.0 ug/g
Ethylbenzene	1.0 ug/g
p-Xylene	1.0 ug/g
m-Xylene	1.0 ug/g
o-Xylene	1.0 ug/g

7) If there is a sample from a stained area the above parameters will be tested as well as EP toxicity for the heavy metals.

8) These results will be compared with previous test results obtained from ten samples taken on 5/29/87 when CSI was being considered by HRI for acquisition. None of the listed solvents were found above the detection limit at that time. If the composite sample reveals solvent levels above the detection limits indicated, the sampling and testing procedure will be repeated. If the results are confirmed, further decontamination of the tank area will be

necessary. The decontamination procedure will be based upon the extent of the contamination indicated by these analysis results and any additional analyses that may be necessary.

HYDROCARBON RECYCLERS, INC.
RCRA CLOSURE PLAN
TANK STORAGE AREA AND TANK TRAILER CLOSURE SCHEDULE

The total time needed to close the two 4500 gallon storage tanks, concrete pad and dike, and the tank trailer is 180 days (See Tank Closure Prior to closure Plan Approval for tank trailer closure schedule).

Review Schedule:

KDHE review time and public comment period: **90 days**

Closure Activity Schedule:

Decontamination and waste removal upon receipt of final KDHE approval of closure plan: **90 days**

Closure Activity	Estimated Time Required
a) Decontamination, Dismantling, and Disposal of Tanks	30 days
b) Decontamination, Removal, and Disposal of Concrete Pad	30 days
c) Removal and Disposal of Hazardous Waste and Cleaning Residue	30 days

Certification of Closure

KDHE will be notified of closure completion within 60 days of the closure of each hazardous waste unit. The notification will include certification from the Plant Engineer and the independent registered professional engineer that the approved closure plan was followed.

TANK CLOSURE PRIOR TO CLOSURE PLAN APPROVAL

This applies to the transport tank. Hopefully the closure plan will be approved prior to HRI's need to begin closure of the other two tanks due to construction scheduling. The time table for the transport tank closure is as follows:

- 1) No liquids were present to be pumped. 1/5/88
- 2) Gastech 1314 vapor monitor showed that solvent vapors were above the 20% LEL (lower explosive limit) for toluene. 1/5/88
- 3) Steamed tank for 24 hours. 1/5-7/88
- 4) Gastech 1314 vapor monitor showed that solvent vapors were below the 20% LEL (lower explosive limit) for toluene. 1/7/88
- 5) The tank was cut open while continuing to steam it to provide wider access to the inside. 1/7/88
- 6) Solids were removed and packaged in a 30 gallon, open-top poly drum and stored in the drum storage area to await shipment off-site for incineration. 1/18/88
- 7) Contracted a high pressure wash company to spray clean the inside of the tank at 10,000 psi. The wash water was collected in 10 x 55 gallon steel drums as drained from the tank. The drums were stored in the drum storage area. 1/20/88
- 8) The drums were sent to HRI in Tulsa to be deepwell injected. 2/15/88
- 9) Tank has been moved to the back lot to await final certification of its cleanness with the other two tanks at which time they will be scrapped.

HYDROCARBON RECYCLERS, INC.
RCRA TANK AND TANK AREA CLOSURE CERTIFICATION

OWNER/OPERATOR CERTIFICATION

I, _____, of Hydrocarbon Recyclers, Inc., 2525 New York Ave., Wichita, Ks. hereby state and certify that, to the best of my knowledge and belief, the two 4500 gallon storage tanks, 3000 gallon tank trailer, and concrete pad and dike have been closed in accordance with the attached KDHE approved closure plan, and that the closure was completed on the _____ day of _____, 1988.

Signature

Date

Title

PROFESSIONAL ENGINEER CERTIFICATION

I, _____, a certified professional engineer, hereby certify to the best of my knowledge and belief, that I have verified that Professional Engineer Closure Certificates were issued to all prior closure activities at Hydrocarbon Recyclers, Inc.-Wichita and that I have made visual inspection of the aforementioned items, and closure of the aforementioned items has been performed in accordance with the closure plan for this portion of the facility approved by the KDHE.

Signature

Date

State Professional Engineer, License No., Issued by the State of Kansas

Business Address and Telephone Number

HRI-WICHITA CONFINED SPACE ENTRY

12/28/87

Effective immediately the following is the outline procedure for confined space entry. Failure to follow the outline procedure could result in grounds for dismissal. Remember safety is the personal responsibility of every worker.

A vessel which has contained a flammable liquid must be steamed out and ventilated as a precondition for issuance of a vessel entry permit. The vessel must be completely isolated from all connecting pipes. Remember, just closing the valve is not enough, all lines should be separated with line blinds or capped off (including the overhead vent line).

The atmosphere of confined spaces may not only be explosive, but also toxic, deficient in oxygen, or both. Therefore, before a workman enters such a container or confined space the atmosphere must be tested with suitable instruments. It is required that entry not be allowed if there is any indication of the presence of flammables by the explosion meter. Also, the toxic contaminate must be below its threshold limit value (TLV) as tested by appropriate instruments before entry without respiratory equipment. This safe atmosphere should be maintained by continued ventilation during the entire time that work is in progress. The requirements for issuance of the permit will be to ascertain (by air sampling tests) that the concentration of hazardous materials is well below the lower explosive limit of the suspected material and therefore safe. A trained employee using a Gastech Model #1314 will test the atmosphere for concentrations of combustible gas or vapor in air, in terms of explosibility and parts per million (ppm). It also measures oxygen and detects oxygen deficiency. The vessel is tested before work starts and is continuously monitored as the work progresses.

Confined space entry will be with a minimum of three men. First, the employee entering the vessel to do the work must wear a full body harness with a life line secured outside the vessel. Second, a work monitor will be stationed outside the vessel to do the work and maintain a visual contact with the worker at all times. Under no circumstances is he to enter the vessel even in an emergency. Third, a trained employee equipped with a MSA self contained breathing apparatus (SCBA) will be stationed outside the vessel at all times. His primary responsibility will be to oversee the work and to make sure that the SCBA be on hand and in

working condition.

Once the decision has been made to enter the confined space, the supervisor will discuss with involved personnel what the nature of the job is and what special precautions are to be taken.

When all of the approvals have been made, the supervisor and the safety officer or general manager will sign the confined space entry form. A copy of the permit will be retained at the work site until the job is complete or the time limit has expired.

VESSEL ENTRY POLICY

The numerous serious or fatal incidents involved in vessel entry at other companies have emphasized the urgent need for close control of those operations. The approval and granting of a vessel entry permit is restricted to Plant Superintendent, General Manager, and/or President.

Attached is a sample vessel entry permit form. Prior to approval and use of a vessel entry form, one of the above approving officials must insure that the equipment has been emptied, washed, flushed, purged and all openings opened and that the vessel is safe for entry.

The Supervisor is also responsible for inspecting the area, vessel, and equipment and insuring that the following items have been accomplished:

1. Adequate tests have been made of the residue and atmosphere to insure that it is safe for entry. These tests usually include tests for flammable gases or vapors, oxygen content determination (minimum of 18%), and toxic materials exposure. Tests should be repeated at intervals to determine if an unsafe condition develops while work is being performed.
2. Personnel are properly equipped and clothed for work in the tank, and adequate forced ventilation has been provided. (Several air changes per minute are desired.) Equipment may include:
 - Airline masks or SCBA
 - Life lines
 - Respirators
 - Rescue equipment

3. A safety watch or observer is assigned and is familiar with his duties and the proper actions to take in an emergency. the "safety observer" should be stationed in a position outside the tank to observe the personnel in the tank at all times.

When the responsible official is satisfied that all of the appropriate items above have accomplished, he then signs the permit and authorizes the work to start.

This permit is not applicable for new vessels under construction.

**CONFINED SPACE ENTRY &
HOT WORK PERMIT**

Date:

Tank #/Location

Time Start

Time Finish

Equipment to be used (check the following):

Gas torch	Grinder
Air drill	Welding
Impact wrench	Sandblasting
Other	

	Not Applic.	Yes	No
1. Is vessel completely isolated from all connecting pipes?
2. Has equipment been thoroughly steamed?
3. Has equipment been flushed with water?
4. Has equipment been flushed with inert gas?
5. Have all surrounding conditions been inspected and found to allow doing the work safely?
6. Have proper preventive measures been taken concerning involved electrical equipment?
7. Have warning tags been attached?
8. Has equipment been cooled and ventilated?
9. Are there any precautions to be observed as to grounding equipment, oiled surfaces, or flammable materials?
10. Does adjacent equipment present any hazards?
11. Can sparks ignite material in the vicinity?
12. Can this work be done by ways that do not generate heat?
13. Can the equipment be removed from the hazard area?
14. Are portable combustible engines permissible in the area?
15. Have specified precautions been taken prior to opening or entering equipment which has been in hazardous waste service?
16. Have plant operators been informed of work to be performed?
17. Special precautions and protective garments:			
Full body harness			
Life line			
Respirator			
a. half mask			
b. full mask			
c. SCBA (MSA)			
Other			
Tivec suit			
Gloves			
Rubber boots			
Continuously monitored atmosphere			

18. Initial atmospheric test

LEL Detection %
Oxygen deficiency %
ppm range ppm

Performed by (signature)

19. Supervisor has discussed with the personnel doing the work what the nature of the job is and what special precautions are necessary.

Employee signatures:

a.
b.
c.

20. Signatures (do not use initials)

Vessel Entry

Hot Work Permit

Foreman	Foreman
Inspector	Inspector
Accepted by Production Manager	

IN CASE OF FIRE OR SPILL, PERMIT IS VOID UNTIL COUNTERSIGNED

HOT WORK PERMIT PROGRAM

The scope of this regulation shall cover **all areas of the plant except for the designated smoking and welding areas**. All outside contractors and subcontractors shall be subject to the provisions of the hot work permit program. Contractors shall be prohibited from doing any hot work which is not covered by hot work permits.

- It shall be the **responsibility of operations and maintenance supervisors** to provide the safest possible conditions under which hot work can be carried out. If possible, the work should be done in an area which presents the least hazard with respect to ignition of surrounding combustible materials.

The following activities and types of equipment are among the **potential sources of ignition** for which hot work permits may be required:

- a) welding and cutting
- b) torches and other open flames
- c) portable electric tools
- d) grinding
- e) rubbish and other open fires
- f) drilling
- g) chipping
- h) soldering
- i) sandblasting
- j) thawing
- k) freeing seized bearings
- l) portable propane or electric heaters
- m) hot plates
- n) discharging photographic flash bulbs
- o) electric displays

The first requirement for issuance of the permit will be to ascertain (by air sampling tests) that the concentration of hazardous materials is well below the lower explosive limit of the suspected material and, therefore, safe. A trained employee using instruments (**Gastech Model #1314**), will test the atmosphere for hazardous concentrations of gas or vapor before the work starts and periodically as the work progresses or conditions change.

A vessel which has contained a **flammable liquid** must be steamed out, cleaned and ventilated, and if possible, filled with water, after providing for proper venting of vapor or gas. This is a **precondition** for issuance of a permit to do hot work on it.

The atmospheres of closed containers and confined spaces may not only be **explosive** but also **toxic, deficient in oxygen**, or both. Therefore, before a workman enters such a container or confined space, the atmosphere must be tested with suitable instruments. It is required that hot work shall not be started if there is any indication of the presence of flammables by the Gastech Model* 1314. Also, the toxic contaminate must be below its threshold limit value as tested by appropriate instruments before entry without respiratory equipment. This safe atmosphere should be maintained by continued ventilation during the entire time that work is in progress.

If the work must be done on location, the area should be thoroughly cleaned, protected against fire, and inspected before the job is begun. Machinery, equipment, and stored materials should be covered with flame-retarded tarpaulins. Metal shields should be set up to confine sparks. Combustible materials should be removed if possible. Otherwise, they should be protected by sheet metal guards, asbestos covering, or other fire-resistant material. Tarpaulins, unless treated with flame retardants, are **unsatisfactory**. But when treated with retardants, and in first class condition, free from holes, they provide effective shielding from sparks.

When possible, production in the immediate area should be halted while hot work is being done. This precaution should be **mandatory** where continued production could, under certain conditions, rapidly create explosive concentrations of dusts, gases, or vapors.

Every effort should be made to eliminate the necessity for hot work in areas containing flammable liquids. When hot work must be done in such areas, extensive control procedures, developed to eliminate or minimize the possible hazard of flammable vapors, must be followed. Surveillance should determine the extent of vapor fringe areas that can be affected by air currents to guard against flashback ignition. Wind conditions should be checked from time to time so that suitable control measures can be taken without delay if changes in the direction or velocity of the wind increase the fire hazard.

Stand-by fire extinguishing equipment should be provided at the job site. On many hot work jobs a fire watcher will be required because the man doing the work will be either unable to see small fires or be unlikely to notice them. On such a two-man job, the work must be stopped if the fire watcher leaves the immediate area.

If hot work is to be done at high elevations, fire watchers with extinguishing equipment should be stationed at various levels to check sparks and hot slag as they cascade downward. It is required that the job site always be thoroughly cleaned and inspected after the hot work has been completed to insure that no smoldering spark or hot slag capable of starting a fire remains.

The assignment of an employee as fire watcher **does not** eliminate or supplant the requirement of removing, covering, or shielding combustible materials and taking other necessary precautions to make the work site as firesafe as possible before the job is started.

Once the decision has been made that it is necessary to perform hot work in a controlled area, the following steps will be taken:

- 1) Before beginning preparations for the job, the supervisor will discuss with the personnel doing the work the nature of the job and special precautions to be taken.
- 2) By following the guidelines stated above, the work area will be made as safe as possible.
- 3) The supervisor will inspect the area and complete the SAFETY, HOT WORK AND ENTRY PERMIT form.
- 4) The safety officer or general manager will also, inspect the area and give final approval for the hot work.

When all the approvals have been made, a copy of the permit will be retained at the work site until the job is complete, or the time limit has expired.

If the job is incomplete and additional time is needed, a new permit must be obtained beginning with Step 1.

dgt
12/17 87